

CLAIMS

1. A silicon semiconductor substrate comprising:
a {110} plane or a plane inclined from a {110} plane as a main surface
5 of the substrate; and
steps arranged at an atomic level along a $\langle 110 \rangle$ orientation on the main surface.
2. The silicon semiconductor substrate according to claim 1, wherein the plane inclined from the {110} plane is a plane inclined from the {110}
10 plane toward a $\langle 100 \rangle$ orientation.
3. The silicon semiconductor substrate according to claim 2, wherein a silicon single crystal thin film is formed by means of an epitaxial growth method on the surface of the silicon semiconductor substrate having the plane inclined from the {110} plane as the main surface.
- 15 4. The silicon semiconductor substrate according to claim 2, wherein the silicon semiconductor substrate having the plane inclined from the {110} plane toward the $\langle 100 \rangle$ orientation as the main surface is subjected to heat treatment in a hydrogen gas atmosphere, an argon gas atmosphere or an atmosphere of a mixture thereof.
- 20 5. A silicon semiconductor substrate having a plane inclined from a {100 } plane toward a $\langle 100 \rangle$ orientation as a main surface, the surface thereof being mirror polished.
6. The silicon semiconductor substrate according to any of claims 2 to 5, wherein an inclination angle of the silicon semiconductor substrate having
25 the plane inclined from the {110} plane toward the $\langle 100 \rangle$ orientation as the

main surface is 0 degree or more and less than 8 degrees.

7. The silicon semiconductor substrate according to any of claims 1 to 6, wherein an orientation flat or a notch is formed in the $\langle 110 \rangle$ orientation.

8. A method for manufacturing a silicon semiconductor substrate,
5 which is the silicon semiconductor substrate according to claim 2, comprising the steps of:

preparing a silicon semiconductor substrate having a plane inclined from a $\{110\}$ plane toward a $\langle 100 \rangle$ orientation as a main surface; and

growing a silicon single crystal thin film by means of an epitaxial
10 growth method on the main surface.

9. A manufacturing method for a silicon semiconductor substrate, which is the silicon semiconductor substrate according to claim 2, comprising steps of:

preparing a silicon semiconductor substrate having a plane inclined
15 from a $\{110\}$ plane toward a $\langle 100 \rangle$ orientation as a main surface; and

heat treating the silicon semiconductor substrate in an atmosphere of hydrogen, argon or a mixture thereof.